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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,096	07/28/2005	Vivian Godfrey Beukes	02814.0070	5509
22852 7590 01/10/2007 FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER SCHUBERG, LAURA J	
			ART UNIT 1657	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/10/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/518,096

Applicant(s)

BEUKES, VIVIAN GODFREY

Examiner

Laura Schuberg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/30/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14, 19-22 and 31-34 is/are pending in the application.
- 4a) Of the above claim(s) 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 19-21, 31-34 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/16/04, 09/13/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group I (claims 1-23 and 29, along with species *Cyclopia Intermedia* and wherein the material is dried to form a sheet) in the reply filed on 11/30/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 15-18 and 23-30 have been canceled.

Claims 1-14, 19-22 and 31-34 are pending.

Claim 22 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Claims 1-14, 19-21 and 31-34 have been examined on the merits.

### ***Claim Objections***

Claim 14 recites the limitation "the cylindrical fermentation container" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject-matter which applicant regards as the invention.

The phrase "repeated a number of times" in line 6 of claim 20 does not clearly define how many times the process is repeated. For examination purposes this is interpreted to mean that the process is repeated at least once.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, 9-11, 32, 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Jarrell et al ("The Kombucha Consortia of Yeasts and Bacteria" 2000).

Claim 1 is drawn to a method of producing an organic material having fire-suppressant properties that multiplies through a process of germination, the method comprising preparing a starter nutrient medium in which the organic bacterial fungus consortium will grow, adding a starter culture to the nutrient medium; permitting the mixture to undergo a first stage fermentation process; transferring the mixture to a fermentation container; allowing the mixture to undergo a second stage fermentation process until the consortium has germinated fully and harvesting the material.

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Dependent claims include the type of nutrient medium, the conditions of fermentation and the material produced.

Jarrell teaches a method of growing tea-fungus "Kombucha". The method includes preparing a starter nutrient medium of tea leaves in water; inoculating with a starter culture; transferring the culture to a fermentation container; allowing the culture to undergo a second fermentation process and harvesting the material (page 168 methods and materials) (claims 1-4). The lowering of the pH of the starter medium is taught (page 166 column 1) since as the tea ferments the medium becomes mildly acidic as well as wherein the acidic medium is from a previous fermentation process (page 168 methods and materials)(claims 5 and 7). Since the fermentation process of Jarrell is not taught to be conducted outdoors it is interpreted that the first stage of fermentation occurs in a laboratory (or kitchen page 168 column 2) in the absence of direct sunlight (claim 9). Jarrell also teaches wherein the mixture remains undisturbed during the fermentation process in stationary cultures at 28 degrees C (page 168)(claims 10, 11, 32).

While Jarrell is silent to the fire-retardant properties of the material produced, these properties are taught by Applicant to be inherent (page 1 lines 22-24).

Therefore, Jarrell anticipates Applicant's invention as claimed.

Claims 1-4, 8-11, 21, 32, 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Handelman et al (WO 96/24680).

Claims 1-4, 9-11, 32 and 34 are drawn to the method and material as described above.

Dependent claim 8 includes wherein the first stage fermentation process occurs for a period of between 3 and 5 days, while the second stage fermentation process occurs for a period of between 10 and 12 days, **OR** until the organic material has grown into a sheet of from about 8 mm to 10 mm thick.

Dependent claim 21 includes wherein the material is dried to form a dry sheet of the material.

Handelman teaches a method of producing a material which displays heat insulating and heat resisting properties comprising growing Black Tea Fungus on the surface of a nutrient medium wherein the culture is removed after a short growth period and allowed to grow further to form a sheet. The nutrient medium is taught to include an aqueous extract of tea leaves (page 4 lines 17-20) (claims 2-4). The material sheet is also taught to be dried as well (abstract) (claims 1-4, 21 and 34). Handelman does not teach that the culture is disturbed (such as by stirring) during the first fermentation process so a sheet may form, thus the culture is interpreted to be undisturbed (claim 10). Wherein the sheet of organic material is grown into a sheet that is 10 mm thick is also taught (page 5 line 21) (claim 8). The fungus is taught to be cultured at room temperature from 25 degrees C to 40 degrees C. Since the disclosed temperature of 25 degrees C falls within Applicant's claimed temperature range, this limitation is deemed to be anticipated by Handelman's disclosure (page 5 line 3) (claims 11 and 32). Since the fermentation process of Handelman is not taught to be conducted outdoors it is

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interpreted that the first stage of fermentation occurs in a laboratory (at room temperature- page 5) in the absence of direct sunlight (claim 9).

Therefore, Handelman anticipates Applicant's invention as claimed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 5-8, 14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman et al (WO 96/24680) as applied to claims 1-4, 8-11, 21, 32, 34 above, and further in view of Jarrell et al ("The Kombucha Consortia of Yeasts and Bacteria" 2000) and Porro et al (Res. Microbiol. 1991).

Claim 5 includes the further step of introducing an acidic medium into the starter nutrient medium for lowering pH to favor the growth of the consortium.

Claim 6 includes wherein the acidic medium is distilled vinegar.

Claim 7 includes wherein the acidic medium is acidic nutrient medium from a previous fermentation process.

Claim 19 includes the further step of, subsequent to germination and harvesting of the material, utilizing the then nutrient medium resulting from the fermentation process as the starter nutrient medium for growing additional material, wherein this further step does not require addition of an external starter culture of the consortium to the nutrient medium.

Handelman teaches the method of growing tea-fungus as in claims 1-4, 8-11, 21, 32, 34 as described above. Handelman also teaches that the optimum conditions and parameters under which the fungus is cultivated may be determined by routine optimization by a person of skill in the art (page 5 lines 5-7).

Handelman does not specifically teach a further step of introducing an acidic medium into the starter nutrient medium. Handelman does not teach growing the tea-fungus without a starter culture with previously fermented medium. Handelman does not teach the specific combination of time periods as in claim 8 of Applicant's method.

Porro teaches that pH changes may be utilized to regulate the feed of fresh nutrients, or the optimization of biomass production from yeast cultures (page 539 column 1).

Jarrell teaches a method of growing tea-fungus "Kombucha". The method includes preparing a starter nutrient medium of tea leaves in water; inoculating with a starter culture; transferring the culture to a fermentation container; allowing the culture to undergo a second fermentation process and harvesting the material (page 168



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methods and materials). The lowering of the pH of the starter medium is taught (page 166 column 1) since as the tea ferments the medium becomes mildly acidic as well as wherein the acidic medium is from a previous fermentation process (page 168 methods and materials). Jarrell also teaches that yeasts are present in the consortium that makes up tea-fungus and that the bulk of macroscopic gelatinous mass is apparently a microbial cellulose similar to the 'mother of vinegar' that forms during vinegar fermentations (page 167 column 1, 2<sup>nd</sup> paragraph). Jarrell also teaches the option of using previously fermented medium without a starter culture to grow the tea-fungus (page 168 column 2) and that this option favored certain cultures (page 169 results and discussion).

Therefore, one of ordinary skill in the art would have been motivated to introduce an acidic medium into the starter nutrient medium for lowering pH to favor growth of the consortium because the regulation of pH of the nutrient medium would have been a matter of routine optimization as taught by Handelman (page 5 lines 5-7). One of ordinary skill in the art would have had a reasonable expectation of success because Porro teaches that pH changes may be utilized to regulate the feed of fresh nutrients, or the optimization of biomass production from yeast cultures (page 539 column 1) and Jarrell teaches yeasts are present in the consortium of tea-fungus and that an acidic medium is produced (page 166).

One of ordinary skill in the art would have been motivated to use the option of using previously fermented medium without a starter culture to grow the tea-fungus because Jarrell teaches that this is a suitable option for growing certain types of tea-

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fungus (page 168). One of ordinary skill in the art would have had a reasonable expectation of success because Jarrell is also growing tea-fungus to optimize the consortial cultures produced (page 169 results and discussion).

In addition, the length of time that the cultures are kept in the fermentation stages, as described in Applicant's claim 8, would also have been a matter of routine optimization as one of ordinary skill in the art would vary these times to obtain a sheet of desired thickness and size. The reasonable expectation of success would come from the fact that Handelman varies fermentation times in many examples and encourages routine experimentation as well (page 5).

Therefore, the combined teachings of Handelman, Jarrell and Porro render obvious Applicant's invention as claimed.

Claims 12-14 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman et al (WO 96/24680) as applied to claims 1-4, 8-11, 21, 32, 34 above, and further in view of Wildi et al (US 6,794,183 B2).

Claim 12 includes wherein the fermentation container is an elongated and substantially cylindrical container.

Claim 13 includes wherein the fermentation container is a fermentation pipe having a diameter in the order of 100 mm, and a length in the order of 6 m.

Claim 14 includes wherein the mixture of medium and consortium is introduced into the fermentation container such that the surface area of the nutrient medium is below a horizontal centerline of the container, the arrangement being such that the

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material is permitted to form into a sheet until it has reached the horizontal centerline of the container, after which the sheet is harvested.

Claim 33 includes wherein the surface area of the nutrient medium is between 8 mm and 10 mm below the horizontal centerline of the cylindrical fermentation container.

Handelman teaches the method of growing tea-fungus as in claims 1-4, 8-11, 21, 32, 34 as described above. Handelman also teaches that the optimum conditions and parameters under which the fungus is cultivated may be determined by routine optimization by a person of skill in the art (page 5 lines 5-7).

Handelman does not specifically teach the use of a cylindrical fermentation container.

Wildi teaches the advantages of a cylindrical fermentation container for the culturing of organism cultures (column 1 line 5) and includes wherein the device is alterable in size and permits a simple handling and servicing (column 3 line 14).

One of ordinary skill in the art would have been motivated to use the cylindrical fermentation container of Wildi in the method of Handelman because Wildi teaches that it is suitable for the culturing of organism cultures and provides the advantages of simple handling and servicing. One of ordinary skill in the art would have been motivated to vary the size of the container because Handelman teaches that the restrictions on the size of the layer that can be grown are determined by the size of the container that can be used (page 7 lines 21-23) and these dimensions would have been a matter of routine experimentation for one of ordinary skill in the art in order to attain a

sheet of material of desired thickness and size. The arrangement of the material below a horizontal centerline and allowing it to form a sheet until the sheet has reached the horizontal centerline would also be motivated by routine experimentation to achieve the desired material in the shortest amount of time at the desired thickness and size depending on the various uses as described by Handelman (page 3). The reasonable expectation of success would come from the fact that Handelman varies fermentation parameters in many examples and encourages routine experimentation as well as desiring a sheet of the same thickness as Applicant (i.e. 10 mm)(page 5).

Therefore, the combined teachings of Handelman and Wildi render obvious Applicant's invention as claimed.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman et al (WO 96/24680) as applied to claims 1-4, 8-11, 19, 21, 32, 34 above, and further in view of Jarrell et al ("The Kombucha Consortia of Yeasts and Bacteria" 2000) Gulser et al (Bioresources Technology 2003) and Osamu et al (JP 62253319 A).

Claim 20 includes wherein the step of claim 19 as described above is repeated a number of times.

The combined teachings of Handelman and Jarrell as described above render obvious the step of claim 19.

Neither reference specifically teaches the repeated re-use of the fermented tea-fungus medium for the growth of tea-fungus.

Gulser teaches the use of a medium containing tea waste for the growth of mushrooms (abstract).

Osamu teach that it is known in the art to re-use waste culture medium of mushrooms after cultivation is over (abstract).

Therefore, one of ordinary skill in the art would have been motivated to re-use the fermented tea-fungus medium in the method of Handelman because Jarrell teaches the option of using previously fermented medium without a starter culture to grow the tea-fungus (page 168 column 2) and that this option favored certain cultures (page 169 results and discussion). One of ordinary skill in the art would have had a reasonable expectation of success in the repeated re-using of this medium because Gulser and Osamu teach that it is known in the art to repeatedly use prior fermentation mediums such as tea wastes.

Therefore, the combined teachings of Handelman, Jarrell, Gulser and Osamu render obvious Applicant's invention as claimed.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman et al (WO 96/24680) as applied to claims 1-4, 8-11, 21, 32, 34 above, and further in view of Hasler-Nguyen et al (US 2004/0023894 A1).

Claim 31 includes wherein the tealeaves are selected from a group (Applicant has elected Cyclopia Intermedia).

Handelman teaches the method as described above and teaches that the preferred nutrient medium is an aqueous extract of the tealeaves that are conventionally

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used for drinking (i.e. leaves from the plants *Camellia sinensis* or *Thea sinensis*) (page 4 lines 17-20).

Handelman does not specifically use the tealeaves of *Cyclopia Intermedia*.

Hasler-Nguyen teaches that tea leaves such as *Camellia sinensis* and honeybush (otherwise known as *Cyclopia Intermedia*) are functional equivalents for herbal sources of antioxidant preparations (page 3 para 56). Clearly Hasler-Nguyen considers honeybush (*Cyclopia Intermedia*) as suitable for drinking as the tea leaves of *Camellia sinensis* since the composition taught is intended as a drink product (page 5 para 80).

Therefore, one of ordinary skill in the art would be motivated to use the tea leaves of *Cyclopia Intermedia* in the method of Handelman because Hasler-Nguyen teaches that these tealeaves are suitable for use in a drink product and Handelman teaches that any tea conventionally used for drinking is preferred for the nutrient medium (page 4). One of ordinary skill in the art would have had a reasonable expectation of success because Hasler-Nguyen teaches that both *Camellia sinensis* and *Cyclopia Intermedia* (honeybush) are functional equivalents due to their similar properties (page 3 para 53).

Therefore, the combined teachings of Handelman and Hasler-Nguyen render obvious Applicant's invention as claimed.

### ***Conclusion***

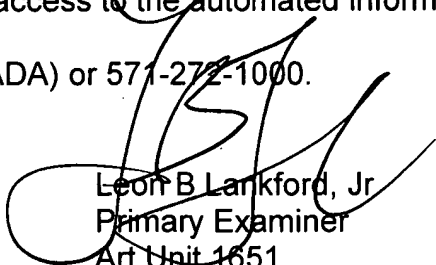
No claims are allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura Schuberg whose telephone number is 571-272-3347. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Leon B Lankford, Jr.  
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